Exhibit B

Consensus Coal Production Forecast For West Virginia 2011 Update

Prepared for the
West Virginia Department of Environmental Protection
Office of Special Reclamation

By

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Executive Summary

The Great Recession caused coal production in West Virginia to decline drastically in 2009. The state produced just 137.2 million short tons of coal in 2009, which was a 13.1 percent decrease from 2008. State coal production fell again in 2010, to 135.7 million tons. That was an additional 1.1 percent decline, which left state production 14.0 percent below 2008 (pre-recession) levels.

The drop in state production in 2010 was likely related to a number of factors, including lost production due to the Upper Big Branch mine explosion, as well as rising costs due to new safety regulations, a shortage of skilled workers, and increased scrutiny of surface mining permits. Rising world demand for coal likely softened the blow in 2010.

The Great Recession affected coal production in both northern and southern West Virginia, but it caused a more severe decline in production in the south in 2009. Coal production in the southern region declined to 98.8 million short tons of coal in 2009 from 116.7 million short tons in 2008. This translated into a 15.3 percent decrease in production from 2008 to 2009. Coal production also decreased in the northern region from 2008 (41.1 million short tons) to 2009 (38.4 million short tons), which was a 6.6 percent decline.

Production trends within West Virginia diverged in 2010, with the northern region posting an increase of 7.9 percent, while production in the southern region declined by an additional 4.6 percent. These trends have continued into the first five months of 2011, with northern coal production up by 8.7 percent compared to the same period in 2010. In contrast, southern coal production is down 2.1 percent compared to the first five months of 2010. This likely reflects a number of factors, including the loss of production due to the Upper Big Branch mine explosion, increasingly challenging geologic conditions, increasing regulatory scrutiny of surface mining permits (which primarily impacts the southern coal fields), and the impact of installation of pollution control equipment at power plants that allows the burning of higher sulfur coals produced in northern Appalachia and elsewhere.

The consensus forecast calls for state coal production to rise from 135.7 million tons in 2010 to 138.0 million tons in 2011, an increase of 1.7 percent. Rising coal production in 2011 is partly driven by strong export demand, particularly for metallurgical coal. Coal production declines in 2012 to 136.0 million tons and again in 2013 to 131.8 million tons. Thereafter, coal production continues to decline through the forecast period, reaching 117.6 million tons by 2030.

Declining coal production during the forecast period reflects the cumulative effect of a number of factors weighing on production in the state. These include demand-side factors that tend to make coal produced in the state a less attractive choice as a fuel to generate electricity. These include additional restrictions on SO_2, NO_x, and mercury (and hazardous air pollutants more generally) and the related investments in pollution control equipment by electric power producers. These investments tend to make coal produced in the southern part of the state less attractive relative to coal produced in Northern Appalachia and other regions of the country. In addition, the forecast reflects the perception that natural gas will be a more potent competitor for coal in the generation of electricity in the future, as well as efforts by electricity producers to start positioning themselves for the eventual regulation of green house gases. These forces contribute to the expectation that utilities will phase out less efficient coal-fired plants in favor of those with fewer problematic emissions (such as scrubbed coal-fired plants and plants that burn natural gas and

other non-coal fuels, such as biomass). This includes coal-fired plants located in West Virginia (Kanawha River, Phillip Sporn, and Kammer) slated for shut-down by AEP.

These adverse demand-side trends are exacerbated by supply-side issues. These include the increasingly challenging geologic conditions that tend to raise production costs. In addition, the increasing scrutiny of surface mining permits by the U.S. Environmental Protection Agency (EPA) is also expected to contribute to declining productivity at surface mines, and thus rising production costs, in southern West Virginia.

The consensus coal forecast calls for production to decline during the 2011-2030 period. However, it is important to understand that the forecast depends on a number of assumptions that have important impacts on the outlook for coal production in the state. These assumptions include the expected rate of growth of the U.S. and world economies, the competitive and regulatory environment, and the magnitude of the impact of the competitive and regulatory environment on power generation, industrial activity, and mining operations. The potential impact of these assumptions on the forecast is both uncertain and huge, which in turn means that the outlook for coal production in the state is uncertain and may deviate to an unknown extent from the consensus forecast.

In addition, there are up-side risks to the consensus forecast. For instance, the U.S. Energy Information Administration (EIA) assumes that the price of imported crude oil rises from $92.57 in 2008 to $181.43 by 2035. If oil prices rise faster than expected, this may present an opportunity for additional investment in coal-to-liquids (CTL) capacity, which would in turn generate increased demand for coal. Likewise, additional development of electric power generation that employs carbon capture and sequestration (CCS) technology may support higher levels of coal production in the future.

Finally, West Virginia coal competes in an increasingly global marketplace. Indeed, the state has seen significant increases in coal exports recently. This likely reflects strong demand for metallurgical coal, as well as supply disruptions internationally (Australian floods), which combine to support continued high metallurgical coal prices. If West Virginia coal producers are more effective than expected in maintaining and opening foreign markets for metallurgical and steam coal, then actual coal production may exceed the consensus forecast. Indeed, the continued consolidation in the industry (like the recent acquisition of Massey Energy by Alpha Natural Resources and the acquisition of ICG by Arch Coal) may make international marketing efforts more effective in the future.

This report proceeds as follows: the Recent Developments section describes in more detail updated trends in coal production, prices, employment, and productivity; the updated consensus coal production forecast for West Virginia is summarized next; followed by an update risks section. Appendix I contains the details of the construction of the consensus forecast and Appendix II summarizes each of the updated component forecasts individually.

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Recent Developments

With Jordan Hantz, Undergraduate Research Assistant

Coal Production

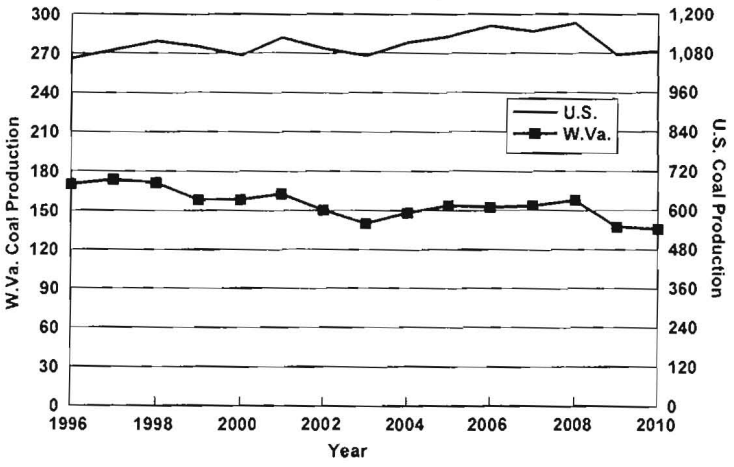
Figure 1 displays the annual production of coal in the United States and West Virginia from 1996 to 2010, according to preliminary data. The Great Recession caused coal production in West Virginia to decline drastically in 2009. The state produced just 137.2 million short tons of coal in 2009, which was a 13.1 percent decrease from 2008. State coal production fell again in 2010, to 135.7 million tons. That was an additional 1.1 percent decline, which left state production 14.0 percent below 2008 (pre-recession) levels.

The drop in state production in 2010 was likely related to a number of factors, including lost production due to the Upper Big Branch mine explosion, as well as rising costs due to new safety regulations, a shortage of skilled workers, and increased scrutiny of surface mining permits. Rising world demand for coal likely softened the blow in 2010.

National coal production rose in 2010, to a level of 1,085.3 million short tons, according to preliminary estimates. That was a 1.0 percent increase over 2009 and reflects rebounding U.S. and world demand for electricity and steel. However, national coal production remained 7.4 percent below pre-recession (2008) levels.

Even with recent declines, West Virginia accounted for a significant share of national coal production. In 2010, the state produced 12.5 percent of the nation's coal. However, West Virginia's share of national coal production declined since 1996, when it accounted for 16.0 percent of coal produced in the U.S.

Figure 1
Annual Coal Production
W.Va. And U.S.
(Million Short Tons)



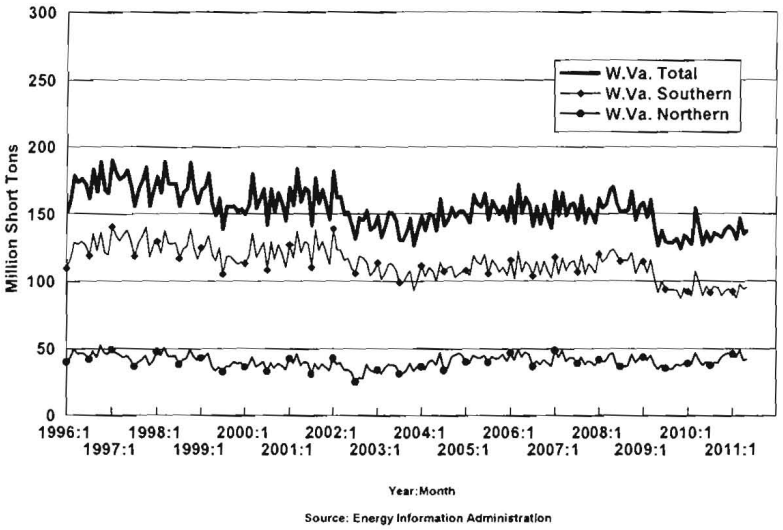
Source: Energy Information Administration

As seen in Figure 2, the preliminary monthly data suggest that West Virginia coal production has begun to gradually increase in recent months. Indeed, state coal production rose by 4.5 percent on average from the second half of 2009 to the second half of 2010. Data through May of 2011 suggest that state coal production has continued to rise so far this year, with total coal production up 1.2 percent compared to the first five months of 2010.

Figure 2 also shows that the production of coal in the state is heavily concentrated in the southern region with significantly less coal produced in the north.[1] In 2010, the southern region produced 69.5 percent of West Virginia's coal, while the northern region produced 30.5 percent.

The Great Recession affected coal production in both northern and southern West Virginia, but it caused a more severe decline in production in the south in 2009. Coal production in the southern region declined to 98.8 million short tons of coal in 2009 from 116.7 million short tons in 2008. This translated into a 15.3 percent decrease in production from 2008 to 2009. Coal production also decreased in the northern region from 2008 (41.1 million short tons) to 2009 (38.4 million short tons), which was a 6.6 percent decline.

Figure 2
W.Va. Monthly Coal Production By Region
(Non-seasonally Adjusted, Annualized In Million Tons)



Source: Energy Information Administration

Production trends within West Virginia diverged in 2010, with the northern region posting an increase of 7.9 percent, while production in the southern region declined by an additional 4.6 percent. These trends have continued into the first five months of 2011, with northern coal production up by 8.7 percent compared to the same period in 2010. In contrast, southern coal production is down 2.1 percent compared to the first five months of 2010. This likely reflects a number of factors, including the loss of production due to the Upper Big Branch mine explosion,

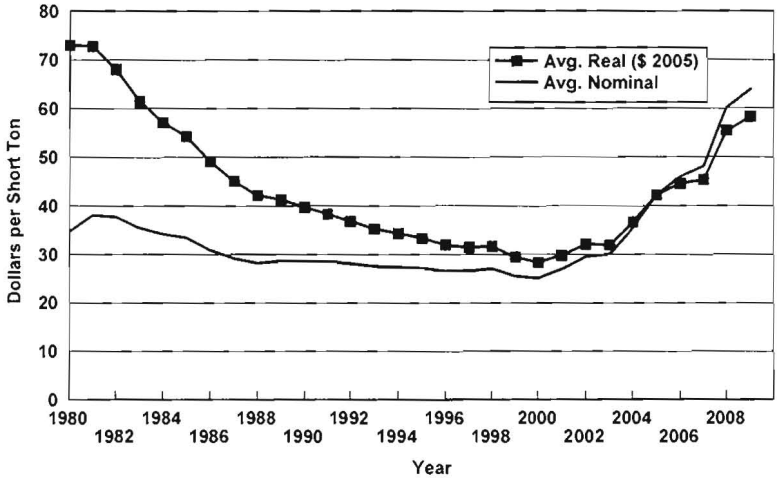
[1] The northern region includes the counties of: Barbour, Braxton, Brooke, Calhoun, Doddridge, Gilmer, Grant, Harrison, Jackson, Lewis, Marion, Marshall, Mineral, Monongalia, Ohio, Pleasants, Preston, Randolph, Ritchie, Roane, Taylor, Tucker, Tyler, Upshur, Webster, Wetzel, Wirt, Wood, and Hancock. The southern region includes the counties of: Boone, Cabell, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, Mason, McDowell, Mercer, Mingo, Nicholas, Pocahontas, Putnam, Raleigh, Summers, Wayne, and Wyoming. This was obtained from the Energy Information Administration (EIA).

increasingly challenging geologic conditions, increasing regulatory scrutiny of surface mining permits (which primarily impacts the southern coal fields), and the impact of installation of pollution control equipment at power plants that allows the burning of higher sulfur coals produced in northern Appalachia.

Coal Prices

As seen in Figure 3, coal prices increased rapidly during the past decade in West Virginia, which was unusual considering that prices consistently declined since 1981. Nominal coal prices hit bottom in 2000, at $25.17 per short ton. From 2000 to 2009, nominal coal prices rose at an average annual rate of 10.9 percent per year. The real price of coal (adjusted for inflation, using the GDP deflator) also increased during this time period. Indeed, the real price increased by 8.3 percent per year from 2000 to 2009. This indicated that nominal prices of coal rose faster than the rate of inflation.

Figure 3
Average Mine Price Of W.Va. Coal
(Nominal And Real Dollars Per Short Ton)



Source: Energy Information Administration

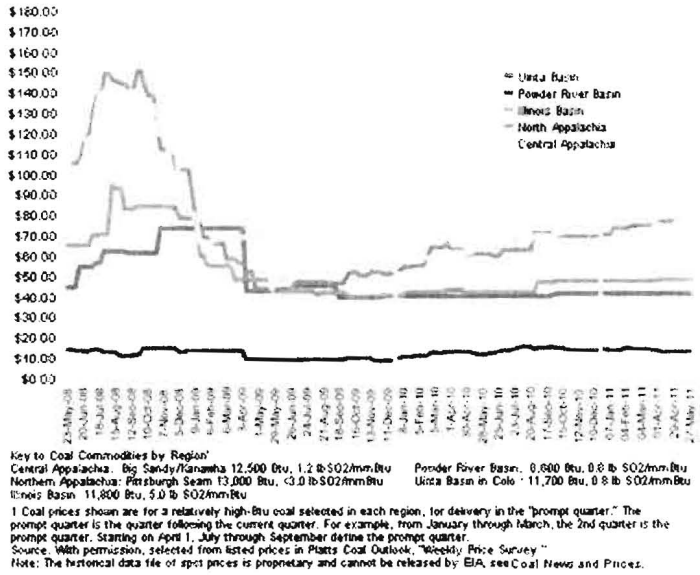
Figure 4 shows monthly coal spot prices for the Central and Northern Appalachian regions from May 23, 2008 until May 27, 2011.[2] Spot coal prices have been very volatile during the past three years and have followed a similar pattern in both regions. Spot coal prices peaked in the summer/fall of 2008 in the $145 per ton range in part because of strong world growth, which increased demand for steel and electricity and thus coal. During the same period, the industry experienced declining productivity and thus rising costs, due in part to increasingly challenging geologic conditions.

However, demand declined during 2008 and into 2009 due to the Great Recession, which lead to falling spot prices during 2009. Prices eventually fell to lows in the $45 per short ton range in May 2009 in both regions. This translated into roughly a 70.0 percent decrease in spot coal prices for both the Central and Northern Appalachian regions.

[2] The Central Appalachian region includes southern West Virginia, and the Northern Appalachian region includes northern West Virginia.

With the end of the Great Recession in 2009, demand for steel and electricity rose, and spot coal prices began to gradually increase. The spot price at the end of May 2011 for the Central Appalachian region was $78.85. Spot coal prices in the Northern Appalachian region were similar by the end of May 2011, at $78.15. Although spot prices have increased since June 2009, they have not yet reached pre-recession levels ($145 per ton range).

Figure 4
Historical Average Weekly Coal Commodity Spot Prices
($ Per Short Ton)



Metallurgical coal export prices have increased rapidly during the past year, rising from $120.70 per ton in March 2010 to $178.99 in March 2011, according to data from the EIA. That likely reflects continued strong international demand, as well as international supply constraints (Australian floods).

Coal Mining Employment

Both the U.S. and West Virginia experienced major employment declines in coal mining from 1990 to 2000. Indeed, employment dropped during these years by 60,118 in the U.S. and by 11,883 in West Virginia. This translated into a total percentage decline of 45.7 percent and a 44.3 percent decrease in coal mining employment in the nation and the state, respectively. Coal mining employment trends for the nation and the state are displayed in Figure 5.

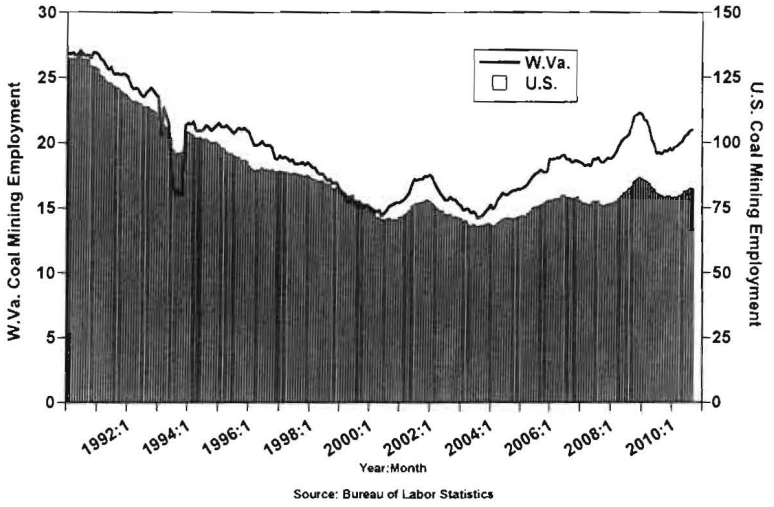
In contrast to the job losses suffered during the 1990s, coal mining employment has risen significantly since 2000. Indeed, the state added 5,300 jobs from 2000 to 2009, which translated into a percentage increase of 35.3 percent. Nationally, coal mining jobs have risen by 14.8 percent since 2000.

However, this overall growth trend has been interrupted by recessions and by regulatory uncertainty. In particular, the state experienced coal mining job losses during the 2002-2003 period, due to the aftermath of the U.S. recession of 2001 and regulatory uncertainty related to

surface mining. The state also experienced significant mining job losses during the Great Recession, with employment falling by 12.3 percent from December 2008 to December 2009. Coal mining jobs declined by 8.2 percent nationally during that period.

As with coal production and prices, employment began to rebound during the past year. Indeed, state coal mining jobs increased by 9.6 percent from September 2009 to September 2010 (the most recent coal mining employment data available from the U.S. Bureau of Labor Statistics). National coal mining employment rose by 3.4 percent during the same period.

Figure 5
Coal Mining Employment
W.Va. And U.S.
(Non-seasonally Adjusted, In Thousands)



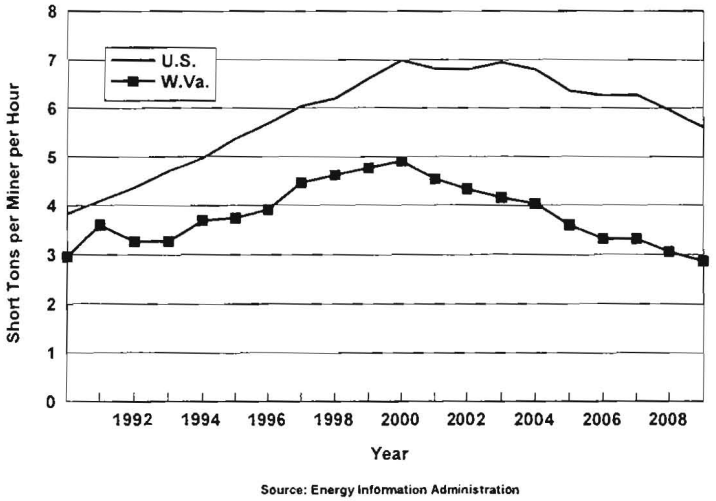
Source: Bureau of Labor Statistics

Coal Productivity

Coal productivity can be measured by coal production per miner per hour, which is displayed annually in Figure 6 for the U.S. and West Virginia. Coal productivity has declined gradually after a peak in 2000 in West Virginia. Coal productivity fell from 4.9 short tons of coal per miner per hour in 2000 to 2.9 in 2009. This translated into an average decrease of 5.7 percent per year. This was also the lowest coal productivity in the state since 1990 (3.0 short tons of coal per miner per hour). This likely reflects the increasing share of coal production in northern West Virginia (which is primarily underground mining) and the increasingly challenging geologic conditions being encountered in the southern coal fields.

Coal productivity was higher for the U.S. than for West Virginia in 2009, which reflects the large surface mines located in the West. However, national coal mining productivity peaked in 2000 as well, at 7.0 short tons of coal per miner per hour. Like West Virginia, the nation's coal productivity also decreased since 2000. It fell to 5.6 short tons of coal per miner in 2009, which translated into a 2.4 percent annual decrease.

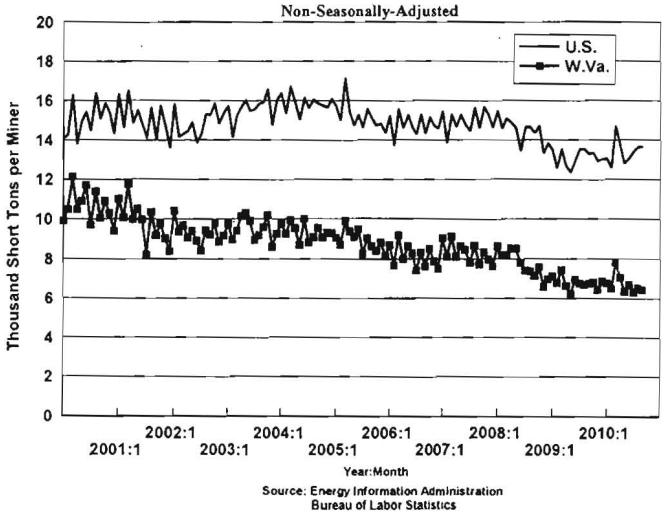
Figure 6
Annual Coal Mining Productivity
W.Va. And U.S.
(Short Tons Of Coal Per Miner Per Hour)



Source: Energy Information Administration

West Virginia showed a steady decline in monthly coal productivity since a peak in March 2000. This is displayed in Figure 7 measured in thousands of short tons per miner. Coal productivity was just over 12 thousand short tons per miner in West Virginia in March 2000. It declined by 35.5 percent by March 2010. The U.S. followed a similar path in monthly coal productivity. After a peak in March 2005, monthly coal productivity declined until January 2010 for the nation.

Figure 7
Monthly Coal Mining Productivity
W.Va. And U.S.
Annualized Coal Production In Thousand Short Tons Per Miner
Non-Seasonally-Adjusted

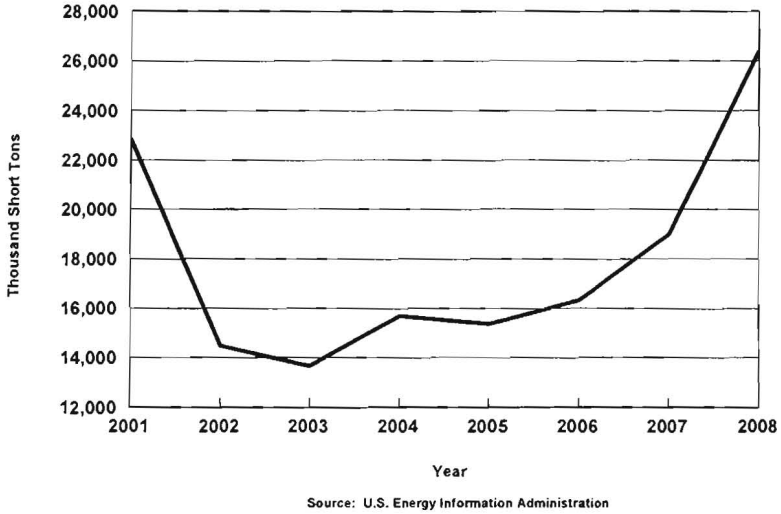


Source: Energy Information Administration
Bureau of Labor Statistics

Coal Exports

Coal is one of the most important commodity exports from West Virginia. According to data from the U.S. Energy Information Agency (EIA), the volume of coal exports from the state decreased from 2001 to 2003, but rose by 93.3 percent from 2003 to 2008. This is shown in Figure 8, which displays the volume of exports of West Virginia coal in short tons.

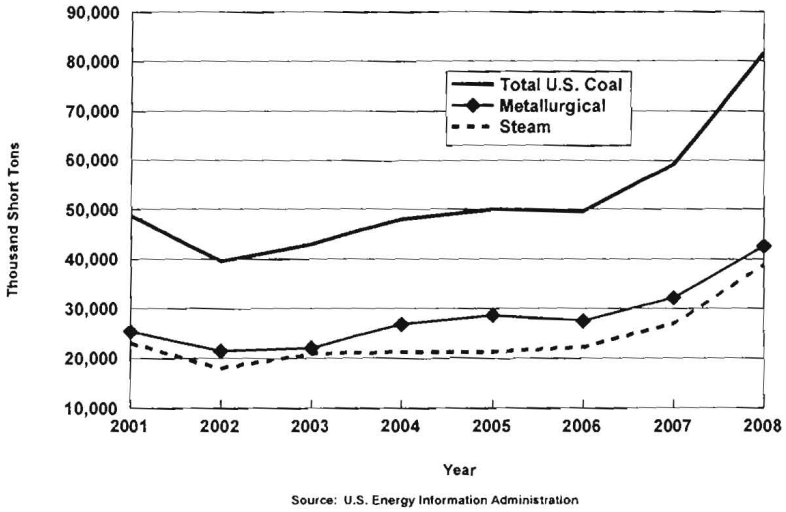
Figure 8
Foreign Distribution Of West Virginia Coal
2001-2008



Source: U.S. Energy Information Administration

The U.S. also experienced a sharp increase in coal exports during the past decade, although the surge began in 2002, as Figure 9 shows. In fact, U.S. coal exports rose by 105.8 percent from 2002 to 2008, as strong world growth drove demand for electricity and steel, and thus coal.

Figure 9
U.S. Coal Exports By Type
2001-2008



Source: U.S. Energy Information Administration

U.S. coal exports include both metallurgical and steam coal. The U.S. has exported more metallurgical coal than steam coal in recent years, as Table 1 and Figure 9 show. Indeed, the nation exported 42,549 thousand short tons of metallurgical coal and 38,971 thousand short tons of steam coal in 2008. Metallurgical and steam coal comprised 52.2 and 47.8 percent of the nation's coal exports in 2008, respectively.

Table 1
U.S. And W.Va. Coal Exports
(Thousand Short Tons)

	2001	2002	2003	2004	2005	2006	2007	2008
U.S. Metallurgical	25,412	21,535	22,090	26,841	28,661	27,498	32,185	42,549
U.S. Steam	23,254	18,066	20,924	21,157	21,281	22,149	26,978	38,971
Total U.S. Coal	48,666	39,601	43,014	47,998	49,942	49,647	59,163	81,519
U.S. Percent Metallurgical	52.2	54.4	51.4	55.9	57.4	55.4	54.4	52.2
U.S. Percent Steam	47.8	45.6	48.6	44.1	42.6	44.6	45.6	47.8
W.Va. Coal Exports	22,855	14,480	13,660	15,677	15,358	16,327	18,981	26,404
W.Va. Coal Export Share	47.0	36.6	31.8	32.7	30.8	32.9	32.1	32.4

Source: U.S. Energy Information Administration

West Virginia is responsible for a significant share of total U.S. coal exports. Indeed, 47.0 percent of the coal exported from the nation originated from West Virginia in 2001. However, the state's share of U.S. coal exports decreased since 2001 to 32.4 percent in 2008.

Table 2 displays the top countries to which West Virginia exported coal, by volume. The EIA has discontinued this dataset, and only data for 2001 through 2003 are available. For these years, West Virginia exported the most coal to Canada. Indeed, Canada accounted for 20.6 percent of West Virginia's coal exports during this period. Italy, France, Brazil, the U.K., and the Netherlands also accounted for large shares of state coal exports.

Table 2
Top Ten Rankings And Tonnage By Destination Of W.Va. Coal Exports
(Thousand Short Tons)

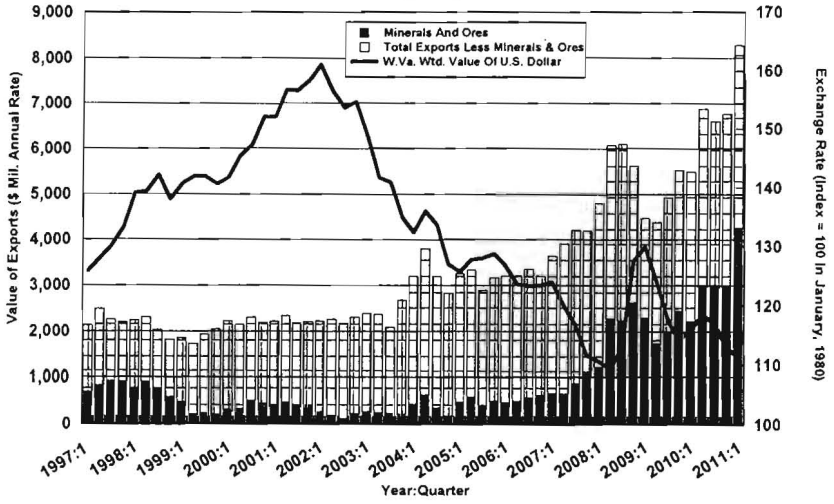
	2001		2002		2003	
Ranking	Country	Tonnage	Country	Tonnage	Country	Tonnage
1	Canada	4,974	Canada	4,515	Canada	2,808
2	Italy	4,257	Italy	2,276	Italy	2,095
3	France	2,287	France	1,277	France	1,608
4	Brazil	2,040	Brazil	1,016	Netherlands	1,061
5	United Kingdom	1,858	Netherlands	877	Brazil	967
6	Netherlands	1,372	Spain	691	Spain	846
7	Sweden	728	United Kingdom	642	United Kingdom	735
8	Spain	635	Sweden	403	Egypt	604
9	Turkey	323	Algeria	303	Turkey	532
10	Bulgaria	305	Turkey	262	Algeria	506

Source: U.S. Energy Information Administration

Part of the surge in coal exports since 2003 is related to a major drop in the value of the U.S. dollar during the period. As the value of the U.S. dollar drops, it buys fewer units of foreign currency (and foreign currencies tend to buy more U.S. dollars). This, in turn, tends to make U.S. goods and services cheaper for foreign consumers. Thus, when the dollar falls against most other currencies, we expect that to spur U.S. exports, other things constant.

As Figure 10 shows, the West Virginia export-weighted value of the U.S dollar has depreciated significantly since 2002. Indeed, after peaking in the first quarter of 2002, the state's weighted-average value of the U.S. dollar declined by 30.9 percent by the first quarter of 2011. This depreciation likely played a large role in the surge in the value of commodity exports from West Virginia during the 2002 to 2010 period.

Figure 10
The Value Of W.Va. Commodity Exports
Increased Rapidly Since 2002



Source: WISERTrade & Author Calculations

As Figure 10 also shows, the value of West Virginia commodity exports has risen significantly since 2002. Indeed, the value of state commodity exports rose from $2,246.5 million in 2002 to $6,427.3 million in 2010, an increase of 186.1 percent. Data on the value of state commodity exports comes from WISERTrade, which begins with raw trade-flow data from the U.S. Census Bureau.

As the figure also shows, state exports of minerals and ores (primarily coal) have risen dramatically since 2002 as well, likely driven by increased metallurgical coal exports. Indeed, the value of West Virginia mineral and ore exports rose from $203.2 million in 2002 to $2,771.2 million in 2010, which is an increase of more than an order of magnitude. This is similar to previous results from the overall volume of state coal exports, in tons. However, it is important to keep in mind that the data on the value of minerals and ores exports reflects both the physical volume and the price of coal.

The WISERTtrade (and U.S. Census) data allow us to analyze the value of commodity exports across industries and destination countries. Table 3 shows the top ten state export industries, ranked by the value of commodity exports in 2010. As the table shows, exports of minerals and ores were the largest (by value) export industry in the state in 2010. Indeed, in 2010, exports of minerals and ores accounted for 43.1 percent of total state exports. The next largest industry in 2010 was chemical products, which accounted for 24.1 percent of state exports.

Table 3
Top Ten W.Va. Export Industries
Ranked By Value Of Commodity Exports In 2010
(Millions of Dollars)

Rank	NAICS	Industry	2008	2009	2010
1	212	Minerals And Ores	2,098.2	2,110.0	2,771.2
2	325	Chemicals	1,540.7	1,181.7	1,549.0
3	336	Transportation Equipment	667.8	416.1	629.1
4	333	Machinery, Except Electrical	375.9	364.0	532.1
5	331	Primary Metal Manufacturing	345.8	170.6	230.0
6	327	Nonmetallic Mineral Products	86.1	90.6	150.7
7	339	Miscellaneous Manufactured Commodities	90.9	108.0	126.3
8	321	Wood Products	84.6	60.5	75.1
9	334	Computer And Electronic Products	66.3	54.1	69.4
10	324	Petroleum And Coal Products	56.3	44.2	53.8
		Total all Industries	5,643.5	4,825.6	6,427.3

Source: WISERTrade

As Table 4 shows, the largest export market (again by value) for West Virginia exports of minerals and ores in 2010 was India, which accounted for 10.9 percent of state exports of minerals and ores. As the table also shows, the European Union is a very large market for state exports of minerals and ores, accounting for 48.7 percent of state exports in 2010.

Table 4
Top Ten W.Va. Mineral And Ores Export Destinations
Ranked By Value Of Commodity Exports In 2010
(Millions of Dollars)

Rank	Country/Region	2008	2009	2010
1	India	258.2	173.9	302.8
2	Brazil	232.7	312.9	280.4
3	Ukraine	97.3	50.2	245.1
4	Italy	122.8	139.9	224.2
5	United Kingdom	149.4	189.0	221.3
6	Netherlands	134.7	212.4	202.8
7	Turkey	144.4	44.5	154.6
8	France	236.1	257.9	150.8
9	Belgium	129.7	178.5	127.3
10	Spain	28.3	101.3	112.1
	European Union (27)	1,014.2	1,304.9	1,348.5
	Pacific Rim, including China	37.2	60.8	73.5
	Mexico, Latin America, Caribbean	259.6	381.8	350.1
	Total Mineral And Ores	2,098.2	2,110.0	2,771.2

Source: WISERTrade

Consensus Coal Production Forecast For West Virginia

The consensus coal production forecast for West Virginia arises from the combination of four forecasts from three forecast providers. The consensus forecast is a weighted average of the component forecasts, where the weights reflect the relative accuracy of past forecasts from each provider. See Appendix I for the derivation of the weights used to combine forecasts.

The component forecasts included in the consensus forecast come from the Energy Information Administration (reference case forecast), West Virginia University Bureau of Business and Economic Research (WVU BBER), and Wood Mackenzie. See Appendix II for summaries of each component forecast.

Forecasts were chosen to reflect a variety of models and forecasts. These vary from short-run forecasts designed to reflect business cycle influences to long-run forecasts derived from firm-level modeling exercises. The WVU BBER and EIA forecasts were produced in late 2010 or early 2011. The Wood Mackenzie forecast was produced in May 2009.

The consensus forecast calls for state coal production to rise from 135.7 million tons in 2010 to 138.0 million tons in 2011, an increase of 1.7 percent. Rising coal production in 2011 is partly driven by strong export demand, particularly for metallurgical coal. Coal production declines in 2012 to 136.0 million tons and again in 2013 to 131.8 million tons. Thereafter, coal production continues to decline through the forecast period, reaching 117.6 million tons by 2030. The consensus coal production forecast is summarized in Table 5 and Figure 11.

Declining coal production during the forecast period reflects the cumulative effect of a number of factors weighing on production in the state. These include demand-side factors that tend to make coal produced in the state a less attractive choice as a fuel to generate electricity. These include additional restrictions on SO_2, NO_x, and mercury (and hazardous air pollutants, more generally) and the related investments in pollution control equipment by electric power producers. These investments tend to make coal produced in the southern part of the state less attractive relative to coal produced in Northern Appalachia and other regions of the country. In addition, the forecast reflects the perception that natural gas will be a more potent competitor for coal in the generation of electricity in the future, as well as efforts by electricity producers to start positioning themselves for the eventual regulation of green house gases. These forces contribute to the expectation that utilities will phase out less efficient coal-fired plants in favor of those with fewer problematic emissions (such as scrubbed coal-fired plants and plants that burn natural gas and other non-coal fuels, such as biomass). This includes coal-fired plants located in West Virginia (Kanawha River, Phillip Sporn, and Kammer) slated for shut-down by AEP.

These demand-side trends are exacerbated by supply-side issues. These include the increasingly challenging geologic conditions that tend to raise production costs, particularly in the southern part of the state. In addition, the increasing scrutiny of surface mining permits by the U.S. Environmental Protection Agency (EPA) is also expected to contribute to declining productivity at surface mines, and thus rising production costs, in southern West Virginia.

Figure 11
W.Va. Consensus Forecast
Coal Production

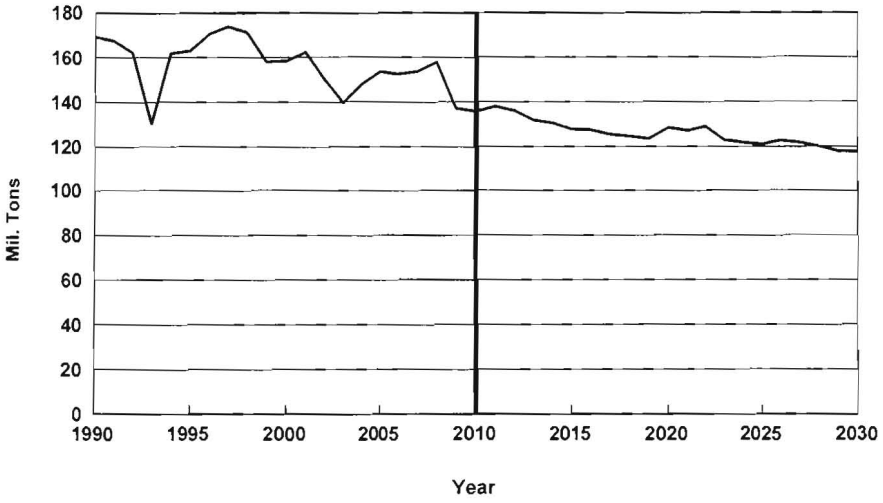


Table 5
W.Va. Coal Production
Consensus Forecast
(Millions of Tons)

	Actual						
	2005	2006	2007	2008	2009	2010	Ann.Gr.(%)
W.Va. Coal Production	153.7	152.4	153.5	157.8	137.1	135.7	-2.5

	Forecast						
	2011	2012	2013	2014	2015	2016	Ann.Gr.(%)
W.Va. Coal Production	138.0	136.0	131.8	130.5	127.8	127.5	-1.6

	Forecast						
	2017	2018	2019	2020	2021	2022	Ann.Gr.(%)
W.Va. Coal Production	125.5	124.6	123.4	128.5	127.0	129.0	0.6

	Forecast						
	2023	2024	2025	2026	2027	2028	Ann.Gr.(%)
W.Va. Coal Production	122.8	121.7	121.1	122.7	121.6	120.0	-0.5

	Forecast		
	2029	2030	Ann.Gr.(%)
W.Va. Coal Production	117.9	117.6	-0.2

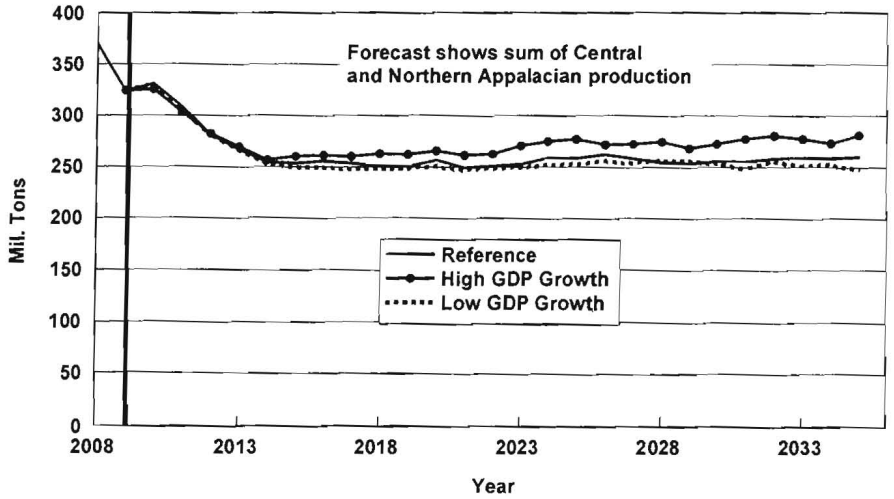
Risks To The Forecast

The consensus coal forecast calls for production to decline during the 2011-2030 period. However, it is important to understand that the forecast depends on a number of assumptions that have important impacts on the outlook for coal production in the state. These assumptions include the expected rate of growth of the U.S. and world economies, the competitive and regulatory environment, and the magnitude of the impact of the competitive and regulatory environment on power generation, industrial activity, and mining operations. The potential impact of these assumptions on the forecast is huge, which in turn means that the outlook for coal production in the state is uncertain and may deviate to an unknown extent from the consensus forecast.

One important assumption built into all of the component forecasts is the assumption regarding future economic growth, typically summarized by real GDP growth. This matters because overall economic growth is an important driver of the demand for electricity and steel, which in turn are important drivers of the demand for coal. Overall, slower economic growth tends to reduce the demand for coal while, faster economic growth increases the demand for coal. The reference case forecast from the Energy Information Administration (EIA) assumes that U.S. real GDP growth averages 2.7 percent per year during the forecast. That growth rate is significantly below the average U.S. growth rate during the 1970-2010 period, which was 2.9 percent per year.

Figure 12 shows the impact of two different growth cases on Central and Northern Appalachian coal production. The high growth case assumes that real GDP, labor force, and productivity growth exceed reference case assumptions. For instance, U.S. real GDP growth averages 3.2 percent per year in the high growth case. As the figure shows, this results in significantly higher coal production by 2035, when production is 20.9 million (or 8.0 percent) above the reference case.

Figure 12
EIA Forecasts For Central And Northern Appalachian Coal Production Under Alternative Growth Scenarios



The low GDP growth case illustrates possible results if real GDP, labor force, and productivity growth falls below the reference case assumptions (with real GDP growth at 2.1 percent per year). In this case, Central and Northern Appalachia production ends the forecast 12.0 million tons (4.6 percent) below the reference case.

Each of the component forecasts also includes an assessment of the future regulatory environment and its impact on power generation, industrial activity, and mining operations. The EIA reference case forecast assumes that the U.S. Environmental Protection Agency (EPA) continues to implement its interim permit review guidelines regarding surface mining. EIA estimates that this reduces productivity at Central Appalachian surface mines by 15-20 percent during the forecast. To the extent that these estimates are too optimistic (i.e. the productivity falls more than expected), then Central Appalachian coal production may be below the reference case forecast. The opposite would occur if EIA estimates are too pessimistic (i.e. productivity falls less than expected).

There are a wide variety of additional regulatory risks to the forecast. These include additional restrictions on emissions of SO_2, NO_x, and mercury (and hazardous air pollutants, more generally). The EIA reference case does not include additional restrictions on these emissions, but the Wood Mackenzie forecast does. Including these restrictions would likely reduce the EIA forecast for Appalachian coal production below reference case levels.

Natural gas is expected to be a formidable competitor for coal in the electricity generation market. The EIA reference case forecast assumes that natural gas production rises quickly during the forecast and that natural gas prices remain low. The lower 48 wellhead price of natural gas is projected to rise by 4.0 percent per year, from $3.62 per million BTU in 2009 to $9.99 per million BTU by 2035. If natural gas prices rise faster than expected (relative to coal prices) then that will likely result in higher than expected coal production. If natural gas prices rise slower than expected, this coal production will likely be lower than expected in the reference case.

None of the component forecasts include a cap-and-trade style plan to reduce the emissions of green house gases. The adoption of such a plan would likely result in lower coal production than expected in the consensus forecast.

There are up-side risks to the consensus forecast. For instance, EIA assumes that the price of imported crude oil rises from $92.57 in 2008 to $181.43 by 2035. If oil prices rise faster than expected, this may present an opportunity for additional investment in coal-to-liquids (CTL) capacity, which would in turn generate increased demand for coal. Likewise, additional development of electric power generation that employs carbon capture and sequestration (CCS) technology may support higher levels of coal production in the future.

Finally, West Virginia coal competes in an increasingly global marketplace. Indeed, the state has seen significant increases in coal exports recently. If West Virginia coal producers are more effective than expected in maintaining and opening foreign markets for metallurgical and steam coal, then actual coal production may exceed the consensus forecast.